REMARKS

This Amendment responds to the office action dated November 4, 2004.

The Examiner rejected claims 32-36 under 36 U.S.C. § 103(a) as being obvious in view of the combination of Mizoguchi, U.S. Patent No. 6,621,578 and Clark III, U.S. Patent No. 3,431,044 (hereinafter Clark). For the following reasons, Mizoguchi may not be combined with Clark in the manner suggested by the Examiner, and in any event the presented claims patentably distinguish in the cited combination.

Mizoguchi discloses an elliposometer intended to measure the optical characteristics of test material by directing a beam of light through both the test material and reference material that has known optical properties. Crucial to the effectiveness of the ellipsometer is that the light passing through the sample and reference materials be plane both be polarized in a matching direction and be of a sufficient intensity so that the output beam may be reliably analyzed. *See, e.g.* Mizoguchi at col. 1 lines 48-53 and col. 8 lines 48-56. To this end, Mizoguchi discloses a half wave plate 202 positioned between a beam emitter 132 that emits plane polarized light, and a plane polarizer 138. Acknowledging that the light from the emitter 132 will likely not be polarized exactly in the same direction as the plane polarizer 138, Mizoguchi discloses that the half wave plate may be rotated to a position that provides such a desired alignment. Further, rotational adjustments of the half wave plate must be highly accurate to provide the desired polarization match. *See Id.* at col. 1 lines 34-36. Mizoguchi discloses that "the fixed frame 214 may have an angular adjusting mechanism for adjusting an angle of the moveable frame 212 about the axis 216, *such that the angular adjustment mechanism, which has a rotatable input axis, converts the rotation of the input axis into a relatively minute angular change of the*

moveable frame." In other words, manual rotation of the input knob or other mechanism must be stepped down to produce a much smaller angular rotation of the half wave plate. (Mioguchi discloses an alternate rotational control system that operates electronically that may not need a step-down feature if the electronic system is capable of producing small and accurate rotational changes in the angular position of the half wave plate. Manually adjustable control systems, however, must have such a feature in order for Mizoguchi's apparatus to work.)

Clark discloses a manually adjustable apparatus for modifying the tone of colored light that passes through two polarizers 18 and 20. Clark discloses that the angular position of each polarizer may be adjusted by pulling a tape wound around the periphery of the polarizers. Clark discloses no step-down feature by which the manual adjustment of the position of the tape results in the fine-tuned adjustments needed by Miozoguchi for the ellipsometer to work effectively. Therefore, one of ordinary skill in the art would not see any motive for the suggested combination of Mizoguchi and Clark because the resultant combination could not be used in an ellipsometer to reliably measure the optical characteristics of the film thickness of samples. *See* MPEP § 2143.01 (proposed modification cannot render prior art unsatisfactory for its intended purposes); *see also* MPEP § 2145 (references cannot be combined where reference teaches away from the combination).

Furthermore, even if Mizoguchi were combined with Clark, each of the presented claims would patentably distinguish over the cited combination. With respect to independent claim 32, the angular adjustment mechanism of Clark does not disclose any structure that would allow the rotational position of each respective polarizer to be adjusted in *either* direction. Referring to FIG. 2 of Clark, for example, pulling on the knob handle 34 will pull the guide wire 28 and rotate

the polarizer 20 in a counterclockwise direction. However, pushing on the handle 34 will not rotate the polarizer 20 in a clockwise direction because the guide wire 28 will separate from the polarizer and the tab 24 will not move. Conversely, independent claim 32, as amended, includes the limitation of "said frame having a backing proximate said substantial length of said bendable member, said backing inhibiting separation of said substantial length from said periphery of said wave plate." Neither cited reference discloses this limitation, hence claim 32 and its dependent claims 33 and 34 each patentably distinguish over the cited combination and should be allowable.

Each of claims 35 and 36 require rotation of a wave plate through an angle greater than 180 degrees and 90 degrees, respectively. These limitations would not be present in the cited combination because, at most, Mizoguchi merely requires rotation of the half wave plate through an angle of 90 degrees; since Mizoguchi only needs to match two polarization directions, the maximum necessary rotation of the polarization state of the input beam is 180 degrees, but a half wave plate need only rotate 90 degrees to provide that 180 degree rotation of the polarization state of the light beam.

The Examiner argues that the respective limitations of 90 and 180 degree rotation of a wave plate are merely "optimal ranges" and cites *In re Aller*, 105 USPQ 233, 235. The Examiner's reliance upon this case is misdirected. First, the goal of rotating the wave plate of Mizoguchi is to match exactly the polarization direction of light output from the wave plate to that of a polarizer proximate the wave plate. Thus, finding an optimal *range* is not at issue here; instead there is an optimal rotational *position* that uniquely depends upon the polarizer and the relative rotational position of the optical axes of the polarizer and the wave plate. That matching

rotational position, as disclosed by the prior art, can always be achieved through a rotation of 90 degrees or less. Thus, the applicant's limitations of rotating a wave plate in excess of 90 and 180 degrees, respectively, is in no way an *optimization* of the procedure taught by Mizoguchi. Rather, these limitations are directed to the discovery, *by the applicant*, of the wave plate properties described on page 8 lines 6-14 of the present specification.

Moreover, the Examiner has not demonstrated that the claimed ranges of more than 90 and 180 degrees respectively, were achievable through "routine experimentation" of any encompassing range disclosed by the prior art. *See* MPEP § 2144.05; *see also In re Aller*, at 235. Nor could the Examiner, because the claimed ranges are outside those disclosed in Mizoguchi and because the wave plate properties respectively addressed by the ranges of Mizoguchi and the present application are different – i.e. merely matching the polarization direction of a wave plate to that of a polaraizer (Mizoguchi) and, between two diametrically opposite but theoretically optically identical rotational positions, selecting the position with better contrast (the present application). Therefore, each of claims 35 and 36 patentably distinguish over the cited combination and should be allowable.

In view of the foregoing amendment and remarks, the applicant respectfully request reconsideration and allowance of claims 32-36.

Respectfully submitted,

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